

REMARKS

The present application includes claims 1-3, 5-7, 10-12, 14-17, 20, 28-30, 32-34, 37-38, 40-44 and 51-52. Claims 1-7, 10-23, 28-34, 37-38, 40-46 and 51-53 were rejected. By this Amendment, claims 1, 10, 16, 20, 28, 37, 43 and 51 have been amended to expedite allowance of the pending claims. Claims 4, 8-9, 13, 18-19, 21-27, 31, 35-36, 39, 45-50 and 53 are cancelled.

The Applicant thanks the Examiner for meeting with Applicant's attorney, Chris George, on February 12, 2007, to discuss the pending claims and cited art. In view of that discussion and to expedite allowance of claims, the Applicant has made the amendments presented above and provides the following remarks in response to the Examiner's rejections.

Claims 1-7, 16-23, 28-34 and 51-53 were rejected under 35 U.S.C. §102(e) as being anticipated by Killcommons et al. (U.S. Pat. No. 6,424,996).

As previously discussed, Killcommons relates to a medical network system and method for transfer of information. That is, Killcommons describes transferring medical data from a modality 12 to a server 20 for storage, and subsequently transferring the stored medical data from the server 20 to a user unit 50 via an email package for viewing. Remote data processor – pre-processing image data; remote image processor – post-processing image data.

Remote control of pre- and post-processing functions at imaging system data processor.

Imaging parameters to process unprocessed image data.

Killcommons teaches the assembly and communication of multimedia information from a variety of modalities to remote users (abstract). Specifically, Killcommons describes a modality 12 -- a medical device, such as data acquisition equipment for magnetic resonance imaging (MRI), computed tomography (CT), ultrasound (US), nuclear medicine (NM), among others -- that sends data to a server 20 where it is processed and then stored and/or sent to others (col. 7, lines 44-51). The server 20 includes a data interface 22 for receiving the data, a processing unit 24 for manipulating the data, a storage unit 30 for storing the data, an assembly unit 32 for gathering information, and an e-mail server 36 for sending the gathered information (col. 7, lines 56-61). Additionally, the server 20 includes a user interface 34 that combines with a browser enhancement module in a user's computer (col. 9, lines 22-29). Killcommons recites a combination of a server and a "browser enhancement module" for emailing medical images to a "user unit" (see, e.g., abstract).

The server 20 includes "a processing unit 24 for manipulating the data" (col. 7, lines 58-59). The processing performed by the processing unit 24 consists of compressing, encoding and/or encrypting the processed image data for transmission to the user unit 50 via email, rather than pre- and/or post- processing unprocessed image data (col. 8, lines 9-19 and col. 10, lines 17-33). As noted in paragraphs [0012]-[0013],

for example, of the present application, pre-processing and post-processing are different from compressing and decompressing data.

The user unit 50 includes a browser 52 (col. 11, lines 18-28) and an enhancement module 54 (col. 11, lines 29-38). The enhancement module 54 includes a user interface 72 and manipulation elements 74 (col. 13, lines 7-16). The manipulation elements 74 “alter the display of information or data” (col. 13, lines 17-20). The enhancement module 54 also includes a modality control unit 78 for controlling “a plurality of modality operations, such as the settings during data acquisition” (col. 15, lines 17-29).

Killcommons discusses assembling multimedia medical image data into an email for electronic mail communication to a user’s computer (Abstract). The data in the email is then extracted from the email to the user’s computer by the user’s computer and its browser enhancement module. The browser enhancement module is a “plug-in” or ActiveX control to enable a web browser to accommodate the multimedia image data (Abstract). The plug-in or ActiveX control at the user machine instructs the server on how to compile the email (Abstract). Thus, the user machine does not control the server to process image data but rather simply instructs the server to compile the processed image data into an email for transmission to the user machine (col. 5, lines 6-22).

Killcommons employs a server to gather data for an already-formed image into an email that is sent via an electronic mail program to a user computer to be extracted and stored on the local user’s machine (*see, e.g.*, col. 3, line 31 – col. 4, line 22 and col. 9, line 42 – col. 10, line 57). The Killcommons system “pushes” the email data to the user’s

local machine for viewing at the local machine. To that end, Killcommons assembles the image into an email for local storage.

As previously discussed, the present application relates to medical imaging data streaming. More particularly, the present invention describes transferring unprocessed ultrasound data from an on-site ultrasound imaging system to a remote terminal and/or processed image data from a remote terminal back an imaging system (Figure 1). Unprocessed ultrasound data includes digital, unprocessed ultrasound data converted from analog ultrasonic sound waves (paragraph 22). Conversely, processed ultrasound data includes ultrasound data after pre-processing and/or post-processing (paragraph 22-24). After pre-processing and post-processing, the processed ultrasound data is converted into pixel image data using a scan converter for viewing (paragraph 25).

More particularly, the present invention gives examples of pre-processing as "calculating the mathematical functions to transform the ultrasound data from one form to another for example" (paragraph 22) and post-processing functions as "B-compression, dynamic range adjustments, or intensity threshold, for example" (paragraph 24), as distinct from compression and decompression (paragraphs 12-13).

Additionally, the present invention provides that "any type of medical imaging system" may be employed (paragraph 38), and thus, is not limited to a particular modality, such as ultrasound, for example.

As described above, the server 20 and the user unit 50 of Killcommons are not capable of performing pre-processing functions or post-processing functions. Consequently, Killcommons is limited to packing/compressing and unpacking/decompressing processed medical data. That is, Killcommons only describes transferring processed medical data from a modality 12 to a server 20 for storage, and from the server 20 to a user unit 50 for viewing. While Killcommons discusses making image data DICOM compliant via a dicomizer 14, it does not disclose pre- and/or post-processing unprocessed image data at a remote terminal. Making the image data DICOM compliant simply indicates that the image data is transmitted in email messages formatted according to the DICOM standard. Thus, the DICOM format does not relate to image processing, and the dicomizer 14 does not process unprocessed data to form processed image data. Furthermore, the data is rendered DICOM compliant prior to storage at the server 20, rather than upon transmission to a remote terminal (col. 7, lines 44-51).

Additionally, Killcommons does not teach or fairly suggest remote control of a medical imaging system for processing medical image data. Killcommons does not teach or suggest a medical imaging system receiving and executing commands from a remote terminal, including pre-processing and/or post-processing function commands. Rather, the only instructions the system of Killcommons receives from a remote terminal are instructions regarding how to package the already-processed image into one or more email messages for delivery to the remote user unit. Killcommons does not disclose transmission of commands related to image processing from a remote terminal to a

medical imaging system. Therefore, the Applicant respectfully submits that claims 1, 7, 28, 34 and 51 are in condition for allowance. Additionally, because independent claims 1, 7, 28, 34 and 51 should be allowable over the cited art, the Applicant submits that their corresponding dependent claims 2-3, 5-6, 29-30, 32-33 and 52 should also be allowable.

Similarly, Killcommons does not teach or suggest a remote terminal receiving unprocessed medical information data and post-processing the unprocessed medical information data according to imaging parameters controlled by an operator at the remote terminal, as recited in claims 16-17 of the present application. Thus, claims 16-17 should be allowable over the cited art.

Killcommons also does not disclose a remote terminal for remotely displaying a medical image including a remote data processor receiving unprocessed medical imaging data and pre-processing the medical imaging data; a remote imaging processor post-processing the pre-processed medical imaging data to form a medical image; remote console controls controlling imaging parameters at the remote imaging processor and relaying commands through the remote data processor to an imaging system; and a display for displaying the medical image. These limitations are recited in claim 20 of the present application. Therefore, claim 20 should be allowable over the cited art.

Claims 10-12, 14-15, 37-38 and 40-46 were rejected under 35 U.S.C. §103(a) as being anticipated by Killcommons in view of Rock et al. (U.S. Pat. No. 6,032,120). In addition to the discussion of Killcommons above, Rock receives a request from a client application for a processed digital medical image (abstract). Upon receiving the request, the server application automatically sends the client application a digital medical image associated with the study (abstract; figures 1-3). In Rock, a digital medical image, which is already processed, is simply requested and retrieved without any remote control of a medical imaging system or imaging processing. In fact, there does not appear to be any mention of processing in Rock at all.

Thus, when viewed in combination with Killcommons, the references do not teach or suggest a medical imaging system transmitting unprocessed communications data to a remote terminal and receiving processed communications data from the remote terminal, wherein the remote terminal transmits remote commands for execution at the medical imaging system with respect to processing of the communications data. Therefore, the Applicant submits that claims 10-12, 14-15, 37-38 and 40-42 should be allowable.

Additionally, no combination of Killcommons and Rock teaches or fairly suggests receiving unprocessed medical imaging data at a remote terminal and post-processing the medical imaging data according to imaging parameters controlled by an operator at the

Application No. 10/029,162
Attorney Docket No. 15-DS-00544 (13048US01)

remote terminal. These limitations are recited in claims 43-44. Therefore, the Applicant submits that claims 43-43 should be allowable.

Application No. 10/029,162
Attorney Docket No. 15-DS-00544 (13048US01)

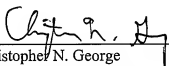
CONCLUSION

The Applicant respectfully submits that the application is in condition for allowance. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited and encouraged to contact the Applicant at the number below.

The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of GTC, Account No. 070845.

Respectfully submitted,

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